

1. (currently amended) A medical system comprising:
a medical instrument to be guided in a patient body,
an X-Ray acquisition means system for which acquiring a two-dimensional X-ray image of said medical instrument,
an ultrasound acquisition means system for acquiring a three-dimensional ultrasound data set of said medical instrument using an ultrasound probe,
means for a localizer which providing provides a localization of said ultrasound probe within a referential of said X-ray acquisition means system,
means for a selector operable to selecting a region of interest around said medical instrument in the three-dimensional ultrasound data set, that defines a first localization of said region of interest within a referential of said ultrasound acquisition means system,
means for a convertoring which converts said first localization of said region of interest within said referential of the ultrasound acquisition means system into a second localization of said region of interest within said referential of the X-ray acquisition means system, using said localization of the ultrasound probe,
a means for generationg and displaying screen which displays a bi-modal representation of said medical instrument in which said two-dimensional X-ray image and the three-dimensional ultrasound data included in said region of interest are combined using said second localization.

2. (currently amended) A system as claimed in claim 1, wherein said means for selector is operable to selecting a region of interest ~~are~~ intended to define a reference plane in which a part of said medical instrument is included.

3. (original) A system as claimed in claim 2, wherein said region of interest is a 2D ultrasound image obtained by sampling said 3D ultrasound data set over said reference plane.

4. (original) A system as claimed in claim 2, wherein said region of interest is obtained by cropping a 3D ultrasound data subset, which lies behind said reference plane or by cropping a slab which is formed around said reference plane.

5. (currently amended) A system as claimed in claim 4, wherein said ~~generation and display screen is~~ing means are intended to generate a volume rendered view of said region of interest within said 3D ultrasound data set.

6. (currently amended) A system as claimed in claim 1, wherein said ~~probe localizer is~~ation means are intended to localize an active localizer, which has been arranged on said ultrasound probe.

7. (currently amended) A system as claimed in claim 1, wherein said ultrasound probe is equipped with at least three non aligned and interdependent radio-opaque markers and

~~said localizer is~~ation means are intended to localize said markers in at least a first 2D X-ray image having a first orientation angle in said referential.

8. (currently amended) A system as claimed in claim 7, wherein said ~~localizer is~~ation means are intended to further localize said markers in a second 2D X-ray image having a second orientation angle in said referential.

9. (currently amended) A system as claimed in claim 1, wherein said ~~selector is operable to~~ion means comprise means for detecting said medical instrument within said region of interest of the 3D ultrasound data set and

~~said generation and display screen is~~ng means are intended to give to the points of the detected medical instrument in said bimodal representation the X-ray intensity values of the corresponding points in the 2D X-Ray image.

10. (currently amended) A system as claimed in claim 1, comprising ~~means for a segmenter operable to segmenting~~ a wall tissue region in the 3D ultrasound data set and

~~said generation and display screen is~~ng means are intended to give to the points belonging to said wall tissue region the ultrasound intensity values of the corresponding points of said region of interest.

11. (currently amended) A system as claimed in claim 1, wherein the X-Ray acquisition ~~means are~~system is intended to provide live two-dimensional X-Ray

images and the ultrasound acquisition ~~means system~~ live three-dimensional ultrasound data sets.

12. (currently amended) A system as claimed in claim 11, comprising a controlling means for periodically triggering the probe localization means.

13. (currently amended) A system as claimed in claim 11, comprising a compensator operable to~~means for~~ compensating a motion between a current three-dimensional ultrasound data set acquired at a current time and a previous three-dimensional ultrasound data set acquired at a previous time.

14. (original) A method of guiding a medical instrument in a patient body, comprising the steps of:

- acquiring a two-dimensional X-ray image of said medical instrument using an X-ray acquisition system,
- acquiring a three-dimensional ultrasound data set of said medical instrument using said ultrasound probe and an ultrasound acquisition system,
- localizing said ultrasound probe in a referential of said X-ray acquisition system,
- selecting a region of interest of said medical instrument within said 3D ultrasound data set, that define a first localization of said region of interest within a referential of said ultrasound acquisition system,
- converting said first localization within said referential of said ultrasound acquisition system into a second X-Ray localization within said referential of the X-ray acquisition system,
- generating and displaying a bimodal representation of said medical instrument in which said two-dimensional X-ray image and the three-dimensional ultrasound data included in said region of interest are combined using said second localization.